

CLAIMS

1. A portable communication device with a virtual image display, comprising:

a hand held frame having a first end and a second, opposite end;

5 an earphone speaker for projecting sound mounted in the first end of the frame; and

a virtual image display system including a display and at least one optic through which a user looks to view an enlarged virtual image of information depicted on the display, the virtual image display system being mounted in the second end of the frame wherein at least one of the
10 earphone speaker and the virtual image display system are mounted on the frame for movement to increase the distance between the earphone speaker and the optic through which the user looks to view the image when the device is in use.

2. A portable communication device with a virtual image display as recited in claim 1 wherein the earphone speaker is mounted on the frame for movement.

3. A portable communication device with a virtual image display as recited in claim 2 wherein the earphone speaker is mounted on the frame for sliding movement.

4. A portable communication device with a virtual image display as recited in claim 1 wherein the virtual image display system is mounted for movement on the frame.

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5. A portable communication device with a virtual image display as recited in claim 4 wherein the virtual image display system is mounted for pivotal movement on the frame.

6. A portable communication device with a virtual image display as recited in claim 1 wherein both the virtual image display system and the earphone speaker are mounted for movement on the frame.

7. A portable communication device with a virtual image display as recited in claim 6 wherein the virtual image display system and the earphone speaker are connected such that manual movement of one will automatically cause movement of the other.

8. A portable communication device with a virtual image display as recited in claim 7 wherein the virtual image display system is mounted for pivotal movement on the frame and the earphone speaker is mounted for sliding movement on the frame.

5 9. A portable communication device with a virtual image display as recited in claim 1 including a switch mounted on the device, the switch having a right position and a left position; and a controller responsive to the switch being moved from the right position to the left position to invert the image depicted on the display so that the top of the image is adjacent to a first side of the frame when the switch is in the right position and the top of the image is adjacent to a second side of the frame when the switch is in the left position.

10. A portable communication device with a virtual image display as recited in claim 9 further including a first microphone

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5 mounted on the first side of the device and a second microphone mounted on the second side of the device, said controller being responsive to the switch being in the right position to disable the first microphone and enable the second microphone and the controller being responsive to the switch being in the left position to disable the second microphone and enable the first microphone.

11. A portable communication device with a virtual image display, comprising:

a hand held frame having a back wall, a front wall with one or more keys, a first end and a second end;

5 an earphone speaker for projecting sound mounted in a first end of the frame;

10 a virtual image display module including a display and at least one optic through which a user looks to view an enlarged virtual image of information depicted on the display, the virtual image display module being mounted on the second end of the frame for pivotal movement between an in-use position and a storage position in which the optic is covered by the back wall of the frame.

12. A portable communication device as recited in claim 11, wherein the earphone speaker is movably mounted in the first end of the frame to increase the distance between the earphone speaker and the virtual image display module.

13. A portable communication device as recited in claim 11 including a housing portion for the earphone speaker to form an earphone module that is movably mounted in the first end of the frame to increase the distance between the speaker and the virtual image display module; and a linkage connected between the virtual image
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display module and the earphone module, the linkage moving one of the earphone module or the display as a user moves the other of the modules from its first position to its second position.

14. A portable communication device as recited in claim 11 including a switch movable between a first and second position and a controller responsive to the position of the switch to invert the image depicted on the display so that the device may be used with the earphone speaker adjacent the user's right ear and the image may be viewed by the user's right eye or the device may be used with the earphone speaker adjacent the user's left ear and the image may be viewed by the user's left eye.

15. A portable communication device as recited in claim 11 including at least one wire extending through the pivot to the display to connect the display to the battery and/or a source of video information.

16. A portable communication device with a virtual image display comprising:

a hand-held frame having a first aperture in a first end of the frame, a second aperture in a second, opposite end of the frame;

an earphone module mounted on the frame in the first aperture for slidable movement therein between first and second earphone positions;

a virtual image display module mounted on the frame in the second aperture for pivotal movement between first and second position, the virtual image display module having a display and an optical system with at least one optic through which the user looks to view a virtual video image of information depicted on the display wherein the optical system projects a magnified image of the displayed information that

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15 appears to be at a greater distance from the user than the display module;
and

a linkage connected between the virtual image display module
and the earphone module, the linkage moving one of the earphone
module or the display module from its first position to its second
position as a user moves the other of the modules from its first position
20 to its second position.

5 17. A portable communication device with a virtual image
display as recited in claim 16 wherein said linkage includes a pair of
elongated members, each having a first end coupled to the earphone
module and having a second end coupled to the virtual image display
module such that the second end of each elongated member is pulled in
a direction generally away from the first aperture as the virtual image
display module is moved from a first, extended position to the second,
storage position to slide the earphone from a first, extended position to a
second, storage position.

5 18. A portable communication device as recited in claim 16
including a switch movable between a first and second position and a
controller responsive to the position of the switch to invert the image
depicted on the display so that the device may be used with the earphone
speaker adjacent the user's right ear and the image may be viewed by
the user's right eye or the device may be used with the earphone speaker
adjacent the user's left ear and the image may be viewed by the user's
left eye.

19. A portable communication device with a virtual image
display, comprising:

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a hand held frame having a first end and an opposite, second end
and a first side and an opposite, second side;

5 an earphone speaker for projecting sound mounted in the first
end of the frame;

a virtual image display system having a display depicting an
image and at least one optic into which the user looks to view a virtual
image, the optic being located at the second end of the frame;

10 a switch having a right position and left position; and

a controller responsive to the switch being moved from the right
position to the left position to invert the image depicted on the display so
that the top of the image is adjacent a first side of the frame when the
switch is in the right position and the top of the image is adjacent the
15 second side of the frame when the switch is in the left position.

20. A portable communication device as recited in claim 19
further including a first microphone mounted on the first side of the
device and a second microphone mounted on the second side of the
device, said controller being responsive to the switch being in the right
5 position to disable the first microphone and enable the second
microphone and the controller being responsive to the switch being in
the left position to disable the second microphone and enable the first
microphone.

21. A portable communication device as recited in claim 20
wherein said first and second microphones are respectively mounted on
the first and second sides of the frame.

22. A portable communication device as recited in claim 20
wherein said virtual image display system is mounted in a module
housing coupled to the second end of the frame and said first and second

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5 microphones are respectively mounted on the first and second sides of
the module housing.

23. A portable communication device as recited in claim 22 wherein said module housing is pivotally mounted on the second end of the frame to allow the virtual image display system to be moved from an in-use position to a storage position.

24. A portable communication device as recited in claim 23 wherein a surface of said frame covers the optic when the module housing is in its storage position.